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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,654

09/26/2006

Manfred Buck

MC1-8353

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7590 03/07/2011
Christopher P Harris
Tarolli Sundheim Covell & Tummino
1300 East Ninth Street
Suite 1700
Cleveland, OH 44114

EXAMINER

LEE, SIN J

ART UNIT

PAPER NUMBER

1722

MAIL DATE

DELIVERY MODE

03/07/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,654	Applicant(s) BUCK ET AL.	
	Examiner Sin J. Lee	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-35 and 45-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-35 is/are allowed.
- 6) ☒ Claim(s) 45-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This non-final Supplemental action is being sent to applicants because in the last Office action of February 9, 2011, the Examiner did not include a prior art rejection on present claim 49.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 45-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Rong et al ("On the Importance of the Headgroup Substrate Bond in Thiol Monolayers: a Study of Biphenyl-Based Thiols on Gold and Silver", Langmuir, vol.17, pg.1582-1593 (2001)).

Rong teaches (see abstract) self-assembled monolayers of a series of \square -(4'-methyl-biphenyl-4-yl)-alkane thiols ($\text{CH}_3\text{-C}_6\text{H}_4\text{-C}_6\text{H}_4\text{-(CH}_2\text{)}_m\text{-SH}$, $m=1-6$) formed on polycrystalline gold and silver surfaces. Specifically, Rong teaches SAM of ($\text{CH}_3\text{-C}_6\text{H}_4\text{-C}_6\text{H}_4\text{-(CH}_2\text{)}_m\text{-SH}$) in which $m=\text{even}$ (2, 4, 6) on gold surface and SAM of ($\text{CH}_3\text{-C}_6\text{H}_4\text{-C}_6\text{H}_4\text{-(CH}_2\text{)}_m\text{-SH}$) in which $m=\text{odd}$ (1, 3, 5) on silver surface (see abstract). Present claims 45-48 are product by process claims. Therefore, Rong et al, which teaches SAM of ($\text{CH}_3\text{-C}_6\text{H}_4\text{-C}_6\text{H}_4\text{-(CH}_2\text{)}_m\text{-SH}$) in which $m=\text{even}$ (2, 4, 6) on gold surface and SAM of ($\text{CH}_3\text{-C}_6\text{H}_4\text{-C}_6\text{H}_4\text{-(CH}_2\text{)}_m\text{-SH}$) in which $m=\text{odd}$ (1, 3, 5) on silver surface, teaches present inventions of claims 45-48.

4. Claim 49 is rejected under 35 U.S.C. 102(b) as being anticipated by Myerson (US 2003/0170999 A1).

Myerson teaches a self-assembled monolayers with local domain area sizes ranging from 25 um^2 to 2500 um^2 . In Fig.1 (see also [0022]), Myerson illustrates example of self-assembled monolayers of *rigid biphenyl* thiols that can be used as the crystallization domain for his invention. Since the range of 25 um^2 to 2500 um^2 exceeds 10^5 nm^2 , Myerson teaches present invention of claim 49 (present claim 49 is a product by process claim).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stolowitz et al (US 2002/0192722 A1).

Stolowitz teaches the following in its claims 1-2;

1. A sensor surface, said sensor surface comprising:
a substrate coated with a free electron metal; and
a matrix layer disposed on said free electron metal, said matrix layer comprising an organic compound, wherein said organic compound has a boronic acid complexing moiety.
2. The sensor surface of claim 1, wherein said matrix is a self-assembled monolayer, a mixed self-assembled monolayer, or combinations thereof.

Claims 4 and 5 of the reference teach gold as the free electron metal, and as the organic compound having the boronic acid complexing moiety, Stolowitz teaches the following in its claim 6;



(1)

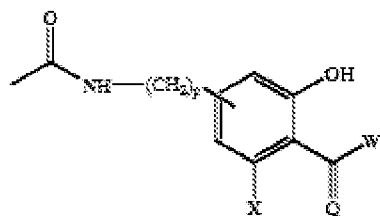
wherein:

X is an anchor group that forms a complex with said free-electron metal;

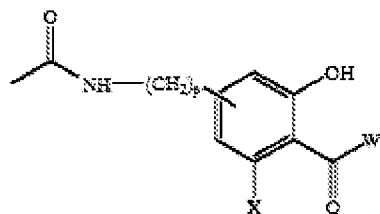
R is an optionally substituted alkylene group optionally interrupted by one or more members selected from the group consisting of a heteroatom, an amide group and combinations thereof; and

Y is a boronic acid complexing moiety.

As examples for the anchor group X, Stolowitz teaches thiol, disulfide and phosphine functional groups (see [0074]-[0076]). Stolowitz teaches that preferably, R is an optionally substituted alkylene group, optionally interrupted by a heteroatom, which is 8-40 carbon equivalents in length (see [0077]). Also, in claim 12, Stolowitz teaches that Y has the following formula;



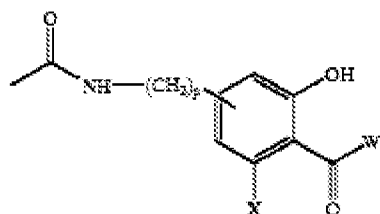
. Based on Stolowitz's such teachings as described above, it would have been obvious to one skilled in the art to obtain Stolowitz's sensor surface comprising a gold substrate and a self-assembled monolayer (disposed on the gold substrate) having an organic compound X-R-Y, in which X is an anchor group of thiol, R is an alkylene group of 8 carbon atoms and Y is a group of the formula



, with a reasonable expectation of success.

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Also, Stolowitz teaches (see claim 4) that as the free electron metal of claim 1, silver can be used as well. Therefore, it would also have been obvious to one skilled in the art to obtain Stolowitz's sensor surface comprising a silver substrate and a self-assembled monolayer (disposed on the silver substrate) having an organic compound X-R-Y, in which X is an anchor group of thiol, R is an alkylene group of 9 carbon atoms (since the alkylene group R is taught to have any number of carbon atoms chosen from 8 to 40) and Y is a group of the formula



, with a reasonable expectation of success. Thus,

Stolowitz's teaching renders obvious present inventions of claims 45 and 46 (those claims are product-by-process claims).

Allowable Subject Matter

7. Claims 25-35 are allowed. None of the cited prior arts teaches or suggests present method of claim 25 which requires the steps (a) and (b).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sin J. Lee/

Primary Examiner, Art Unit 1722

March 2, 2011